Comparison of the Contribution Income Statement with the Traditional Income Statement			
Traditional Format		**Contribution Format**	
Sales	$ 100,000	Sales	$ 100,000
Cost of goods sold	70,000	Variable expenses	60,000
Gross margin	$ 30,000	Contribution margin	$ 40,000
Selling & admin. expenses	20,000	Fixed expenses	30,000
Net operating income	$ 10,000	Net operating income	$ 10,000

The contribution income statement is helpful to managers in judging the impact on profits of changes in selling price, cost, or volume. The emphasis is on cost behavior.

Contribution Margin (CM) is the amount remaining from sales revenue after variable expenses have been deducted.

Basics of CVP Analyses

1. **How changes in activity affect contribution margin and net operating income?**

Racing Bicycle Company Contribution Income Statement For the Month of June		
Sales (500 bicycles)	$	250,000
Less: Variable expenses		150,000
Contribution margin		100,000
Less: Fixed expenses		80,000
Net operating income	$	20,000

1) How many bicycles must be sold each month to break even (net income is zero)?

Racing Bicycle Company Contribution Income Statement For the Month of June				
		Total		Per Unit
Sales (400 bicycles)	$	200,000	$	500
Less: Variable expenses		120,000		300
Contribution margin		80,000	$	200
Less: Fixed expenses		80,000		
Net operating income	$	-		

2) How much net operating income if the company sells 401 bicycles?

Racing Bicycle Company Contribution Income Statement For the Month of June		
	Total	Per Unit
Sales (401 bicycles)	$ 200,500	$ 500
Less: Variable expenses	120,300	300
Contribution margin	80,200	$ 200
Less: Fixed expenses	80,000	
Net operating income	$ 200	

1 x 200 = $200

3) How much net operating income if the company sells 450 bicycles?

50 x 200 = $10000 net income

10,000

2. Use the contribution margin ration (CM ratio)

The CM ratio is calculated by dividing the total contribution margin by total sales.

The variable expense ratio is the ratio of variable expenses to sales

Racing Bicycle Company Contribution Income Statement For the Month of June			
	Total	Per Unit	CM Ratio
Sales (500 bicycles)	$ 250,000	$ 500	100%
Less: Variable expenses	150,000	300	60%
Contribution margin	100,000	$ 200	40%
Less: Fixed expenses	80,000		
Net operating income	$ 20,000		

Example: Coffee Klatch is an espresso stand in a downtown office building. The average selling price of a cup of coffee is $1.49 and the average variable expense per cup is $0.36. The average fixed expense per month is $1,300. An average of 2,100 cups are sold each month. What is the CM Ratio for Coffee Klatch?

a. 1.319
b. 0.758
c. 0.242
d. 4.139

3. **The effects on net operating income of changes in variable costs, fixed costs, selling price, and volume.**

1) What is the profit impact if Racing Bicycle can increase unit sales from 500 to 540 by increasing the monthly advertising budget by $10,000?

	500 units	540 units
Sales	$ 250,000	$ 270,000
Less: Variable expenses	150,000	162,000
Contribution margin	100,000	108,000
Less: Fixed expenses	80,000	90,000
Net operating income	$ 20,000	$ 18,000

540x300= 162000

Increased Contribution margin – increase fixed expense = 40x200 – 10000 = -2000 change of profit

If Sales 580 units 80x200 – 10000 = 6000 more income

2) What is the profit impact if Racing Bicycle can use higher quality raw materials, thus increasing variable costs per unit by $10, to generate an increase in unit sales from 500 to 580?

Sales revenue	580x500 = 290,000
- Variable expenses	580x310 = 179,800
= gross margin	= 110,200
- Fixed expenses	80,000
Net operating income	30,200

3) What is the profit impact if RBC: (1) cuts its selling price $20 per unit, (2) increases its advertising budget by $15,000 per month, and (3) increases sales from 500 to 650 units per month?

Sales revenue	650x480 = 312000
- Variable expenses	650 x 300 = 195000
= contribution margin	117,000
- Fixed expenses	95000
Net operating income	22,000

4) If RBC has an opportunity to sell 150 bikes to a wholesaler without disturbing sales to other customers or fixed expenses, what price would it quote to the wholesaler if it wants to increase monthly profits by $3,000?

$ 3,000 ÷ 150 bikes	**=**	**$ 20 per bike**
Variable cost per bike	**=**	**300 per bike**
Selling price required	**=**	**$ 320 per bike**

proof

150 bikes × $320 per bike	**=**	**$ 48,000**
Total variable costs	**=**	**45,000**
Increase in net operating income	**=**	**$ 3,000**

5) What is the profit impact if RBC: (1) pays a $15 sales commission per bike sold instead of paying salespersons flat salaries that currently total $6,000 per month, and (2) increases unit sales from 500 to 575 bikes?

$15 sales commission will increase the variable expense per unit, remove the flat salary $6,000 will reduce the fixed expense

Sales revenue	575x 500 = 287,500
- Variable expenses	575x (300+15) = 575x315= 181,125
= gross margin	$106,375
- Fixed expenses	80000 – 6000 = 74,000
Net operating income	$32,375

4. Break-Even Analyses

1) Break-even in Unit Sales

2) Break-even in Dollar Sales

Example: Coffee Klatch is an espresso stand in a downtown office building. The average selling price of a cup of coffee is $1.49 and the average variable expense per cup is $0.36. The average fixed expense per month is $1,300. An average of 2,100 cups are sold each month.

1) What is the break-even sales units?

2) What is the break-even sales dollars?